UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,985	01/23/2004	Chang-Hyun Lee	5000-1-507	8233

		EXAMINER
33942 7590 01/24/2007		KIM, DAVID S
CHA & REITER, LLC		
210 ROUTE 4 EAST STE 103		ART UNIT	PAPER NUMBER
PARAMUS, NJ 07652		2613	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/763,985	LEE ET AL.
	Examiner	Art Unit	
	David S. Kim	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 January 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-13</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-13</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>23 January 2004</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to because of the following informalities:

In Fig. 4, "INFORMTION" is used where -- INFORMATION -- may be intended.

In Fig. 7, there are two instances of "300-3". The upper instance of "300-3" may be intended to

be "300-2".

2.   Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office

action to avoid abandonment of the application. Any amended replacement drawing sheet should include

all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a

drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and

where necessary, the remaining figures must be renumbered and appropriate changes made to the brief

description of the several views of the drawings for consistency. Additional replacement sheets may be

necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the

filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be

notified and informed of any required corrective action in the next Office action. The objection to the

drawings will not be held in abeyance.

Claim Objections

3.   **Claims 3 and 6-7** are objected to because of the following informalities:

In claim 3, "data link packets" are used where -- data packets -- may be intended. Otherwise,

antecedent basis is lacking for "data link packets".

In claim 6, "claim 1" is used where -- claim 5 -- may be intended. That is, the use of the term

"second buffer" suggests the existence of a "first buffer", which is introduced in claim 5. Also, in claim 6,

"transmission stream data a control section" is used where -- transmission stream data; a control section -

- may be intended. Otherwise, the limitation reads awkwardly.

In claim 7, "claim 1" is used where -- claim 6 -- may be intended. Otherwise, antecedent basis is lacking for the "second buffer".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Pierson, Jr.

5.   **Claims 1, 3-7, and 9-12** are rejected under 35 U.S.C. 102(b) as being anticipated by Pierson, Jr. (U.S. Patent No. 6,195,346 B1, hereinafter "Pierson").

Regarding claim 1, Pierson discloses:

An transmission apparatus for use in an optical subscriber network, the transmission apparatus comprising:

an optical line termination (e.g., DTE 104 on left side of Fig. 1) to receive transmission stream data (e.g., Fig. 1, channels input into 104, T1 input into 104), packetizing the received transmission stream data into data packets (e.g., ATM cells, T1 frames, SONET frames), and transmitting the data packets as optical signals (SONET signals in col. 3, l. 18-22); and

a plurality of optical network units (e.g., other DTEs shown and implied in Fig. 1) connected to the optical line termination, wherein an optical network unit receives the optical signal transmitted from the optical line termination (e.g., Fig. 6, SONET receiver), converts the optical signal into an electrical signal (opto-electrical conversion is implied by SONET receiver), extracts transmission stream data from the converted data packet (e.g., Fig. 1, T1 output from 109, channels output from 109), and switches the transmission stream data to a subscriber (switch matrix 650 in Fig. 6).

Regarding claim 3, Pierson discloses:

The transmission apparatus as claimed in claim 2, wherein the data link packets are high-level data link control procedure packets (e.g., HDLC in Fig. 1).

Regarding claim 4, Pierson discloses:

The transmission apparatus as claimed in claim 3, wherein the transmission apparatus is used for image data (video in col. 1, l. 34).

Regarding claim 5, Pierson discloses:

The transmission apparatus as claimed in claim 1, wherein the optical line termination comprises:

an transmission stream data receiving unit for receiving transmission stream data from an outside (e.g., 670 in Fig. 6);

a data packet generating unit (e.g., 670 or 675 or 685) for generating a data packet, which has a predetermined payload portion (T1 frames, ATM cells, and SONET frames all have a predetermined payload portion), from the transmission stream data stored; and

an optical output unit (e.g., 685) for converting the data packet into an optical signal for transmission.

The APA does not expressly disclose:

a *first buffer* to buffer the transmission stream data received in the transmission stream data receiving unit to convert the transmission stream data into an data packet;

a data packet generating unit for generating a data packet, which has a predetermined payload portion, from the transmission stream data stored *in the buffer*; and

a *control section* for controlling the transmission stream data receiving section, the buffer and the data packet generating unit.

However, it is conventional practice for a T1 framer, an ATM cell processing section, or a SONET framer to employ a buffer to convert transmission data into a data packet. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ such a buffer. One of ordinary skill in the art would have been motivated to do this since transmission data received by a T1 framer, an ATM cell processing section, or a SONET framer is generally required to be held in a

temporary location while the T1 framer, the ATM cell processing section, or the SONET framer constructs

its cell or frame. A buffer is generally employed to fulfill this requirement.

Additionally, employing a control section for multiple components in an apparatus is an

extremely well known practice. At the time the invention was made, it would have been obvious to one of

ordinary skill in the art to employ a control section for controlling the components of the apparatus of

Pierson. One of ordinary skill in the art would have been motivated to do this for the common purpose of

properly coordinating operation of all of the components, providing standard functions such as

synchronization of components, fault detection, fault recovery, configuration, initialization.

Regarding claim 6, Pierson discloses:

The transmission apparatus as claimed in claim 1, wherein an optical network unit comprises:

an transmission stream data receiving unit (e.g., SONET receiver 605 in Fig. 6) for receiving the

optical signal from the optical line termination, converting the received optical signal into an electrical

signal and outputting an data packet;

an transmission stream data extracting unit (e.g., ATM Cell Buffer 635 in Fig. 6) for receiving the

data packet from the transmission stream data receiving unit, removing overhead from the data packet

and extracting transmission stream data;

a second buffer (e.g., Elastic Store Buffer 640 in Fig. 6) for buffering the extracted transmission

stream data;

a control section (e.g., Buffer Controller 645 in Fig. 6) for controlling the transmission stream

data extracting unit and the buffer; and

a switching unit (switch matrix 650 in Fig. 6) for switching the transmission stream data from the

second buffer to a subscriber.

Regarding claim 7, Pierson discloses:

The transmission apparatus as claimed in claim 1, wherein second buffer continuously outputs

the transmission stream data (notice the case of continuous operation in col. 13, l. 55-57).

Regarding claim 9, Pierson discloses:

The transmission apparatus as claimed in claim 6, wherein the subscriber access to transmission stream data is based on predetermined requirements of each subscriber (e.g., each user on the right side of Fig. 1 is assigned its own channel).

Regarding claim 10, Pierson discloses:

The transmission apparatus as claimed in claim 4, wherein the data packet has a predetermined size of payload (a T1 frame, an ATM cell, or a SONET frame has such a predetermined size of payload).

Regarding claim 11, Pierson discloses:

The transmission apparatus as claimed in claim 5, wherein the data packet has a predetermined size of payload (a T1 frame, an ATM cell, or a SONET frame has such a predetermined size of payload).

Regarding claim 12, Pierson discloses:

The transmission apparatus as claimed claim 6, wherein the data packet has a predetermined size of payload (a T1 frame, an ATM cell, or a SONET frame has such a predetermined size of payload).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Pierson as a primary reference

8.   **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pierson as applied to the claims above, and further in view of the admitted prior art (hereinafter the "APA").

    Regarding claim 2, Pierson does not expressly disclose:

    The transmission apparatus as claimed in claim 1, wherein the transmission stream data is multi-program transmission stream data.

    However, the APA shows that such data is known and common in the art (APA, MPTS in Fig. 1). Usage of such data simply provides an obvious variation of Pierson.

9.   **Claims 8 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pierson as applied to the claims above, and further in view of Petty (U.S. Patent No. 4,965,796).

    Regarding claim 8, Pierson does not expressly disclose:

    The transmission apparatus as claimed in claim 6, wherein the switching unit includes a plurality of memory having assigned storage areas for each transmission stream data and subscriber, wherein the storage areas are enabled for subscriber.

    However, such switching units are known the art, as shown by Petty (Figs. 1 and 5). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement such a switching unit in the apparatus of Pierson. One of ordinary skill in the art would have been motivated to do this since a switching unit of Petty provides advantages over other types of switching units that one may implement for the switching unit of Pierson (Pierson, switch matrix 650 in Fig. 6). For example, the teachings of Petty provide reduction of hardware-related costs and increased flexibility (Petty, col. 2, l. 23-50).

    Regarding claim 13, Pierson in view of Petty discloses:

    The transmission apparatus as claimed in claim 8, wherein the data packet has a predetermined size of payload (a T1 frame, an ATM cell, or a SONET frame has such a predetermined size of payload).

The APA as a primary reference

10.   **Claims 1-2, 4-5, and 10-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over the APA.

   Regarding claim 1, the APA discloses:

   An transmission apparatus for use in an optical subscriber network, the transmission apparatus comprising:

   an optical line termination (OLT in Fig. 1) to receive transmission stream data (MPTS), packetizing the received transmission stream data into data packets (e.g., ATM cells, STM frames), and transmitting the data packets as optical signals (optical transmission on p. 3 l. 3 of Applicant's specification); and

   an optical network unit (ONU 200) connected to the optical line termination, wherein an optical network unit receives the optical signal transmitted from the optical line termination (ONU 200 receives optical signal from OLT), converts the optical signal into an electrical signal (opto-electrical conversion is implied by implied SONET receiver), extracts transmission stream data from the converted data packet (implied by reverse process on p. 3, l. 7 of Applicant's specification), and switches the transmission stream data to a subscriber (switching in 1st paragraph of p. 4 of Applicant's specification).

   The APA does not expressly disclose:

   a *plurality of* optical network units.

   However, the APA does provide other teachings that suggest the use of a plurality of optical network units (ONUs) with the embodiment of Fig. 1. For example, notice the plurality of ONUs on p. 2, l. 13. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ a plurality of ONUs with the embodiment of Fig. 1. One of ordinary skill in the art would have been motivated to do this for the common benefit of broadening the reach of the network to reach more subscribers.

   Regarding claim 2, the APA discloses:

The transmission apparatus as claimed in claim 1, wherein the transmission stream data is multi-program transmission stream data (MPTS in Fig. 1).

Regarding claim 4, the APA discloses:

The transmission apparatus as claimed in claim 3, wherein the transmission apparatus is used for image data (image on p. 3, l. 8 of Applicant's specification).

Regarding claim 5, the APA discloses:

The transmission apparatus as claimed in claim 1, wherein the optical line termination comprises:

an transmission stream data receiving unit for receiving transmission stream data from an outside (e.g., 11 in Fig. 1);

a data packet generating unit (e.g., 11 or 12 or 13) for generating a data packet, which has a predetermined payload portion (ATM cells and STM frames have predetermined payload portions), from the transmission stream data; and

an optical output unit (p. 3, l. 3-4 of Applicant's specification) for converting the data packet into an optical signal for transmission.

The APA does not expressly disclose:

a *first buffer* to buffer the transmission stream data received in the transmission stream data receiving unit to convert the transmission stream data into an data packet;

a data packet generating unit for generating a data packet, which has a predetermined payload portion, from the transmission stream data stored in the *buffer*;

a *control section* for controlling the transmission stream data receiving section, the buffer and the data packet generating unit; and

However, it is conventional practice for an ATM cell processing section or an STM framer to employ a buffer to convert transmission data into a data packet. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ such a buffer. One of ordinary skill in the art would have been motivated to do this since transmission data received by an ATM cell processing section or an STM framer is generally required to be held in a temporary location while the

ATM cell processing section or the STM framer constructs its cell or frame. A buffer is generally employed to fulfill this requirement.

.Additionally, employing a control section for multiple components in an apparatus is an extremely well known practice. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ a control section for controlling the components of the apparatus of the APA. One of ordinary skill in the art would have been motivated to do this for the common purpose of properly coordinating operation of all of the components, providing standard functions such as synchronization of components, fault detection, fault recovery, configuration, initialization.

Regarding claim 10, the APA discloses:

The transmission apparatus as claimed in claim 4, wherein the data packet has a predetermined size of payload (an ATM cell or an STM frame has such a predetermined size of payload).

Regarding claim 11, the APA discloses:

The transmission apparatus as claimed in claim 5, wherein the data packet has a predetermined size of payload (an ATM cell or an STM frame has such a predetermined size of payload).

11.   **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over the APA as applied to the claims above, and further in view of Sekihata et al. (U.S. Patent No. 5,237,569, hereinafter "Sekihata").

Regarding claim 3, the APA does not expressly disclose:

The transmission apparatus as claimed in claim 2, wherein the data link packets are high-level data link control procedure packets.

However, high-level data link control (HDLC) procedure packets are well known in the art. It is also a known practice to transmit such packets through an ATM network, as shown by Sekihata (col. 1, l. 19-21). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to transmit HDLC packets through the ATM network of the APA. One of ordinary skill in the art would have been motivated to do this since Sekihata teaches that transmission according to the HDLC procedure is popular and that it is desirable to provide such transmission through an ATM network (Sekihata, col. 1, l. 18-21).

Conclusion

12.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lang, Aggarwal et al., and Ferguson et al. are all cited to show examples of HDLC transmission through optical transmission apparatuses.

13.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER